

Guidelines

Children and adults carrying excessive weight are at risk for developing numerous associated comorbidities. The following tools are included to assist in assessing these conditions:

- Blood Pressure Levels for Pediatrics
- Adult Guidelines for High Blood Pressure Screening Based on JNC7 (maybe ordered on the Order Form).

Classification of Hypertension in Children and Adolescents, With Measurement Frequency and Therapy Recommendations				
	SBP or DBP Percentile*	Frequency of BP Measurement	Therapeutic Lifestyle Changes	Pharmacologic Therapy
Normal	<90 th	Recheck at next scheduled physical examination.	Encourage healthy diet, sleep and physical activity.	--
Prehypertension	90 th to <95 th or if BP exceeds 120/80 mm Hg even if below 90 th percentile up to <95 th percentile**	Recheck in 6 months.	Weight-management counseling if overweight, introduce physical activity and diet management.***	None unless compelling indications such as CKD, diabetes mellitus, heart failure, or LVH exist.
Stage 1 hypertension	99 th percentile to the 99 th percentile plus 5 mm Hg	Recheck in 1-2 weeks or sooner if the patient is symptomatic; if persistently elevated on two additional occasions, evaluate or refer to source of care within 1 month.	Weight-management counseling if overweight, introduce physical activity and diet management.***	Initiate therapy based if symptomatic hypertension, secondary hypertension, Hypertension target-organ damage, Diabetes (type 1 and 2), Persistent hypertension despite nonpharmacologic measures or if compelling indications as above.
Stage 2 hypertension	>99 th percentile plus 5 mmHg	Evaluate or refer to source of care within 1 week or immediately if the patient symptomatic.	Weight-management counseling if overweight, introduce physical activity and diet management.***	Initiate therapy.****

BP, blood pressure; CKD, chronic kidney disease; DBP, diastolic blood pressure; LVH, left ventricular hypertrophy; SBP, systolic blood pressure.

*For sex, age, and height measurement on at least three separate occasions; if systolic and diastolic categories are different, categorize by the higher value.

**This occurs typically at 12 years old for SBP and at 16 years for DBP.

***Parents and children trying to modify the eating plan to the Dietary Approaches to Stop Hypertension (DASH) eating plan could benefit from consultation with a registered or licensed nutritionist to get them started.

****More than one drug may be required.

Source: The Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents.

Prediabetes or impaired glucose tolerance is increasing in adolescents and adults. It can lead to diabetes if the patient does not take steps to change their lifestyle.

Fasting Blood Sugar Levels	
Normal	Less than 100 mg/dl
Pre-diabetes	Between 100 mg/dl and 125 mg/dl
Diabetes	126 mg/dl or greater

Metabolic Syndrome is increasingly being used to describe a group of risk factors that indicate an increased risk of developing type 2 diabetes mellitus and premature cardiovascular disease in adults. Metabolic syndrome is also known by many names including syndrome X and insulin resistance syndrome. Several diagnostic criteria have been proposed for metabolic syndrome. The criteria by the U.S. National Cholesterol Education Program (NCEP) Adult Treatment Panel III (ATP III), with minor modifications, are currently recommended and widely used. Criteria for children do not exist but metabolic syndrome in adults frequently has its beginnings in childhood.

Diagnostic Criteria of the Metabolic Syndrome (must meet 3 of 5 criteria)
• High fasting plasma glucose ≥ 100 mg/dL
• Abdominal obesity: waist circumference >40 inches (men) or >35 inches (women)
• Hypertriglyceridemia: TG ≥ 150 mg/dL
• HDL <40 mg/dL (men)
• HDL <50 mg/dL (women)
• Blood pressure $\geq 130/85$ mm Hg

For more information:

- *The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure* (JNC 7), National High Blood Pressure Education Program, <http://www.nhlbi.nih.gov/guidelines/hypertension/index.htm>
- Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III), National Cholesterol Education Program (NCEP), <http://www.nhlbi.nih.gov/guidelines/cholesterol/index.htm>
- Clinical Guidelines, South Dakota Diabetes Prevention and Control Program, <http://diabetes.sd.gov/>
- Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, National Heart Lung and Blood Institute, http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm
- Pediatric obesity, American Academy of Pediatrics, <http://www.aap.org/obesity>